

US Patent Application Serial No. 10/672,804
Amendment Dated 8/2/03
Reply to Office Action Dated 5/02/2005

Remarks

Claims 1-6 are pending in the application and are presented for reconsideration. Claims 7-28 are withdrawn from consideration. Claims 1 and 3-6 have been amended; and claim 2 remains in the application unchanged. No new matter has been added.

Support for the amendments to the claims may be found in the specification at page 11, lines 23-24 and at page 12, lines 18-21.

Claim Rejections

Claims 1-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nasuta et al. (U.S. Pat. No. 4,488,301, hereinafter "Nasuta").

The Examiner's rejections of the claims are respectfully traversed.

I. Rejections of Claims Under 35 U.S.C. § 102

1. Legal standard for Rejecting Claims Under 35 U.S.C. §102

Under 35 U.S.C. § 102, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628 (Fed. Cir.), cert. denied, 484 U.S. 827 (1987).

2. Response to Rejections of Claims Under 35 U.S.C. § 102

a. Claims 1-6

Applicant's amended claim 1 recites:

An electrical integrity testing apparatus for testing electrical integrity of nets on a circuit under test, comprising:

a stimulating probe couplable to a first end of a net of interest on said circuit under test;

a signal generator couplable to said stimulating probe operable to generate a known oscillating digital reference signal;

a capacitive sensing probe operable to capacitively couple a signal from a second end of said net of interest when said known oscillating digital reference signal stimulates said first end of said net of interest; and

a signal correlator which performs signal correlation on a digital representation of said capacitively coupled signal with said known oscillating digital reference signal based only on said capacitively coupled

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signal and an expected digital signature of said known oscillating digital reference signal, said signal correlation indicating whether an open defect exists on the net of interest.

The Nasuta Reference

The Examiner cites Nasuta as anticipating claim 1. In particular, the Examiner seeks to equate Applicant's "circuit under test" with Nasuta's PAL16R6, Applicant's "stimulating probe" with Nasuta's any one of connections between NAND gate 69 and Pin 1 of PAL16R6, Applicant's "signal generator" with Nasuta's +5 V supply or Stop-RUN F/F 64 of FIG. 6, Applicant's "signal correlator" with Nasuta's microcomputer 20. The Applicant respectfully traverses the Examiner's characterization of what Nasuta fairly teaches.

Nasuta shows a PAL 60 that is programmed by design as shown in FIGS. 10A and 10B. A test probe 30 is positioned on the PAL 60 to collect a set of reference data. Then, a second programmed PAL of the same type was programmed but an error was intentionally introduced by changing one bit in the program. A second data base was collected and used as the comparison data base. The comparison Walsh Transform coefficients of the reference and comparison data bases were compared to detect the deliberately introduced program error. (Nasuta, col. 5, lines 15-28). However, although Nasuta detects whether the PAL 60 has an error or not, it cannot detect where in the PAL the error is located.

In contrast, Applicant's recited claim 1 teaches "signal correlation indicating whether an open defect exists on the net of interest". As defined in the Applicant's specification at page 1, line 8, a "net" is "an electrically conductive path between two endpoints". In Nasuta, if one of the leads at pins 1, 2, 3, 4, or 5 is considered the first end of a "net", the second end of the net associated with pin 1 would be at the inputs to the D flip-flops in FIG. 9, and the second end of the respective nets associated with pins 2, 3, 4, and 5 would be within the PAL but depend on how the PAL is programmed. Nasuta teaches only whether the PAL program contains a defect. It cannot distinguish between an open defect or

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a short defect. Furthermore, it cannot distinguish between a single programming error in the PAL and multiple programming errors in the PAL. On any given "net" of interest (i.e., the nets associated with pin 1, pin 2, pin 3, pin 4, or pin 5), the Walsh Transform routine cannot indicate whether an open defect exists on that particular net of interest. Nasuta's apparatus can only detect whether a programming error is present in the device under test (i.e., the entire PAL 60). Accordingly, Nasuta does not teach or suggest "a signal correlator which performs signal correlation on a digital representation of said capacitively coupled signal with said known oscillating digital reference signal based only on said capacitively coupled signal and an expected digital signature of said known oscillating digital reference signal, *said signal correlation indicating whether an open defect exists on the net of interest*" as recited in Applicant's claim 1.

Since Nasuta does not meet each and every limitation of Applicant's claim 1, per *Verdegaal Bros., Inc., supra*, Nasuta cannot be used in formulating an anticipation rejection under 35 U.S.C. § 102. Thus, Applicant respectfully submits that the rejection of Claim 1 should be withdrawn.

Claims 2-6 each depend from independent base claim 1 and add further limitations. For at least the same reasons that Claim 1 is not shown, taught, or disclosed by the cited references, Claims 2-6 are likewise not shown, taught, or disclosed. Thus, Applicant respectfully submits that the rejection of claims 2-6 should be withdrawn.

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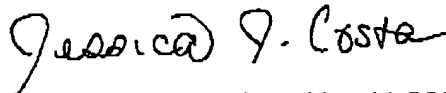
Conclusion

In view of the foregoing remarks, it is respectfully submitted that none of the references cited by the Examiner taken alone or in any combination shows, teaches, or discloses the claimed invention, and that Claims 1-6 are in condition for allowance. Reexamination and reconsideration are respectfully requested.

Should the Examiner have any questions regarding this amendment, or should the Examiner believe that it would further prosecution of this application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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